

This listing of claims will replace all prior versions, and listings, of claims in the application:

**In the Claims:**

1-15. Canceled.

16. (NEW) A radiation sensor comprising:

a support;

a cavity which may be a recess or a through hole formed in one surface of the support;

a sensor element formed above the cavity, preferably on a membrane covering the cavity; and

electric terminals for the sensor element, characterised in that:

the cavity in the surface of the support has a round or oval contour;

the side wall of the cavity is rectangular to the support surface; and

the cavity is formed through dry etching.

17. (NEW) A radiation sensor according to claim 16, characterised in that the support has a rectangular and particularly a square contour.

18. (NEW) A radiation sensor according to claim 17, characterised in that one or more electric terminals are provided in a corner section of the sensor.

19. (NEW) A radiation sensor according to claim 16, characterised in that the sensor element is a thermopile.

20. (NEW) A radiation sensor according to claim 16, characterised in that a plurality of sensor elements are formed above one cavity.

21. (NEW) A radiation sensor according to claim 16, characterised by one or more of the following features:

the membrane material comprises a dielectric, particularly silica and/or silicon nitride;

under the membrane an etching stop layer containing an oxide, particularly silica, is provided; and

the support material contains silicon and/or GaAs and/or a semiconductor material.

22. (NEW) A radiation sensor according to claim 16, characterised by one or more of the following dimensions:

support height H: more than 50  $\mu\text{m}$ , preferably more than 200  $\mu\text{m}$ , less than 1,500  $\mu\text{m}$ , preferably less than 600  $\mu\text{m}$ ;

support edge length L: less than 2 mm, preferably less than 1.5 mm;

cavity diameter D: more than 55%, preferably more than 65% and/or less than 90%, preferably less than 80% of the support edge length; and

membrane thickness D: less than 3  $\mu\text{m}$ , preferably more than 0.1  $\mu\text{m}$ .

23. (NEW) A wafer comprising a plurality of blanks for radiation sensors according to one or more of the preceding claims formed on it, characterised in that the blanks are arranged on the wafer in a rectangular, rhombic, triangular or hexagonal grid.

24. (NEW) A sensor array comprising a plurality of radiation sensors according to one or more of claims 16 to 22.

25. (NEW) A sensor array according to claim 24, characterised in that a plurality of radiation sensors are arranged in two or more rows and in two or more columns.

26. (NEW) A sensor module comprising:

a radiation sensor according to one or more of claims 16 to 22 or a sensor array according to claims 24 or 25;

a housing in which the radiation sensor or the sensor array is accommodated;

an optical window in the housing; and

electric terminals protruding from the housing, said electric terminals being connected to the terminals.

27. (NEW) A sensor module according to claim 26, characterised by an optical projection element, particularly a lens or a mirror.

28. (NEW) A method for manufacturing a radiation sensor comprising the steps:

- production of a plane wafer;
- application of an etching stop layer on a first surface of the wafer and formation of a mechanically stable membrane on top of it;
- application of an etching mask having one or more openings with oval or round contours on the second surface of the wafer; and
- dry etching of cavities in the wafer from the second surface in the direction towards the etching stop layer such that the side wall of the cavity is rectangular to the support surface.